

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

### REMARKS

Claims 29-31, 36-40, 44-47, 50, 51, 54-56, 63-65, 68, 69, and 73-88 are pending in the present application. Claim 29 has been amended to include the limitations of claims 30, 31 and 36. Claims 30 and 31 have been amended to further recite the structure of the interspersed particles of conductive material in the elastomeric member. Further, claims 36 and 73 have been canceled.

### Rejection Under 35 U.S.C. §112

Claims 29-31 and 36-40 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claim 29 has been amended herein to remove the dangling phrase "said attachment device". As such, the applicants believe that claim 29 is definite within the meaning of 35 U.S.C. §112, second paragraph. Claims 30, 31, and 36-40 depend from claim 29. Accordingly, the applicants request that the Examiner withdraw the rejection to the above claims under 35 U.S.C. §112.

### Rejection Under 35 U.S.C. §102(e)

Claims 29, 30, 31, 37-39 and 73 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,060,894 issued May 09, 2000 to Hembree et al. (hereinafter "Hembree '894"). According to the M.P.E.P. §706.02, in order to be anticipating under §102, the reference must teach every aspect of the claimed invention. See Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 138, 231 U.S.P.Q. 644, 646 (Fed. Cir. 1986).

Claim 29 is amended herein to include the limitations of claims 30, 31, and 36. Notably, claim 36 was not rejected under 35 U.S.C. §102(e). Claim 36 is cancelled herein, and claims 30 and 31 have been amended to include further recitations. Because the amendment herein merely adds dependent claims into the base claim, and because all of the claim language was pending in the previous action, the

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

applicants believe that the amendment herein does not raise new issues or add new matter. Thus applicants believe that no new search is required.

With regard to independent claim 29 as amended herein, the Examiner has not met the burden of establishing a *prima facie* case of anticipation under 35 USC §102 because Hembree '894 fails to teach a spring element including an elastic member comprised of a first elastomeric material and a conductive member, the conductive member comprising a plurality of conductive particles interspersed within the first elastomeric material and selected from the group consisting of gold, aluminum, nickel, silver, stainless steel, and alloys thereof.

Hembree '894 teaches a temporary package that includes a spring element. The spring element in a first embodiment is described as a flat, bendable, flexible material such as steel (Col. 4, lines 38-44). In another embodiment, Hembree '894 teaches a conductive member 28 that includes a carbon filled elastomeric layer 29 (Col. 5, lines 5-9). In the last embodiment, a conductive material 82 can comprise a conductive metal, carbon filled elastomer, or a conductive loaded foam. However, no embodiment teaches a plurality of conductive particles interspersed within the first elastomeric material and selected from the group consisting of gold, aluminum, nickel, silver, stainless steel, and alloys thereof. Accordingly, the applicants request that the Examiner withdraw the rejection of claim 29 and the claims that depend therefrom under 35 U.S.C §102(e).

Further, Hembree '894 cannot be used in a rejection under 35 U.S.C. §103 because Hembree '894 is prior art via §102(e). This application is a divisional of US Patent Application Serial No. 09/026,080, filed February 19, 1998, which is a continuation in part of US Patent Application Serial No. 09/009,169 filed January 20, 1998. Accordingly, with respect to the above claims, the effective filing date is at

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

least February 19, 1998. Hembree '894 issued May 09, 2000 and has a chain of priority back to March 03, 1997. Accordingly, Hembree '894 can only be considered under 35 U.S.C. §103(a) via 35 U.S.C. §102(e).

However, subsection 103(c) clearly states that

Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The above-cited version of §103(c) became effective November 29, 1999. This divisional application was filed February 23, 2000.

The applicants assert that the subject matter of US Patent No. 6,060,894 (Hembree '894) and the claimed invention in the present application serial no. 09/510,828 were, at the time the invention was made, subject to an obligation of assignment to Micron Technologies, Inc. Accordingly, subsection (c) of Section 103 makes it clear that Hembree '894 is not available as prior art in the present application for purposes of an obviousness type of rejection.

35 U.S.C. §103(a)

Claims 29 and 36 were rejected under 35 U.S.C. §103(a) as being anticipated by Haseyama (U.S. Patent No. 6,299,320) in view of Barker (U.S. Patent No. 5,175,613) and Lee (U.S. Patent No. 5,014,161). According to the MPEP §706.02(j), in order to establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations.

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

Notably, claim 29 has been amended herein to include the limitations of claims 30, 31 and 36. Claims 30 and 31 were not rejected under 35 U.S.C. §103(a).

With respect to claim 29 as amended herein, Haseyama combined with Barker and Lee fails to teach or suggest a spring element including an elastic member comprised of a first elastomeric material and a conductive member, the conductive member comprising a plurality of conductive particles interspersed within the first elastomeric material and selected from the group consisting of gold, aluminum, nickel, silver, stainless steel, and alloys thereof.

Haseyama neither teaches nor suggests an attachment device including a spring at all. Rather, in Haseyama, an elastic member 31 includes a plurality of contact pins 31 arranged in parallel rows therein. The solder bumps 28 on the semiconductor press against the contact pins 31, which couple the semiconductor to a base substrate. See for example, Col. 8, lines 3-9, Figs. 7-14B. However, the contact pins are provided as continuously solid conductive members, each conductive member arranged to route a specific solder bump on the semiconductor to a specific contact pad on the base substrate.

Moreover, Haseyama neither teaches nor suggests the use conductive particles interspersed in an elastomeric material at all. In fact, Haseyama actually *teaches away* from conductive particles interspersed within an elastomeric. Were the conductive elements to comprise interspersed conductive particles, the electrical signals could potentially short together or be misdirected to an unintended contact pad as the interspersed particles do not guarantee parallel and isolated electrical pathways. For example, one example of interspersed conductive particles given in the present specification comprises conductive particles over one or more surfaces of the spring element 22 to form a layer of conductive material as shown in Fig. 15

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

and described with reference thereto on page 18. In this arrangement, the conductive particles do not even form a conductive pathway completely through the elastomeric material. This would completely defeat functionality of the invention in Haseyama.

In Barker, a cushion 52 is provided between the cover 14 and the semiconductor 24. However, there is no discussion or indication in Barker to teach or suggest that the cushion 52 be comprised of conductive particles interspersed in an elastomeric material.

In Lee, a system is provided for detachably mounting semiconductors on a conductive substrate. Basically, a resilient, anisotropic conductor pad provides a conductive interface between the semiconductor die and the conductive substrate (Col. 4, lines 16-18). Thus the conductive pad includes a plurality of discrete, parallel conductive elements. Much like in Haseyama, the conductive elements are arranged to make an electrical connection between the contact pads on the semiconductor die and the substrate. As such, Lee actually *teaches away* from interspersed particles. Lee requires that the conductive elements be arranged parallel to one another because the conductive elements are intended to carry a conductive signal from the semiconductor to the substrate. In a manner similar to that described above with reference to Haseyama, were the conductive elements to comprise interspersed conductive particles, the electrical signals could potentially short together or be misdirected to an unintended contact pad as the interspersed particles do not guarantee parallel and isolated electrical pathways.

Haseyama combined with Barker and Lee fail to teach or suggest all of the limitations of claim 29 as amended herein. Accordingly, the applicants request that the Examiner withdraw the rejection of claim 29 under 35 U.S.C. §103. Claim 36 has

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

been cancelled herein. Accordingly, the applicants request that the Examiner withdraw the rejection of claim 36 under 35 U.S.C. §103.

#### Amendments To Claims 30 and 31

The limitations of claims 30 and 31 were added to claim 29 herein. Accordingly, instead of canceling each of claims 30 and 31, claim 30 is amended herein to further recite that the conductive particles claimed in claim 29 are adhesively applied to at least one surface of the elastomeric material. Support for this amendment can be found in the Specification on page 17, lines 20-21. In a similar manner, claim 31 was amended to further recite that the conductive particles are interspersed within the elastomeric member so as to define a layer of conductive material on at least one surface of the first elastomeric material. Support for this further recitation is found on page 17, lines 21-23. The changes to the above claims do not raise new issues, nor do the amendments add new matter. Both claim amendments are fully supported by the specification. Further, both claims are dependent upon a base claim that the applicants believe to be patentable over the art of record.

#### Allowable Subject Matter

The applicants thank the Examiner for the early indication of allowable subject matter.

Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

CONCLUSION

For all of the above reasons, the applicants respectfully submit that the above claims represent allowable subject matter. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
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Attorney Docket No. MIO 0020 VA (97-0198.02)  
Serial No. - 09/510,828

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

29. (Twice Amended) An apparatus for attaching to a plurality of contacts of a semiconductor, said apparatus comprising:

an interconnect structure comprising a plurality of conductors patterned to match corresponding ones of said plurality of contacts of said semiconductor; and

an attachment device comprising a spring element including an elastic member comprised of a first elastomeric material and a conductive member, said conductive member comprising a plurality of conductive particles interspersed within said first elastomeric material and selected from the group consisting of gold, aluminum, nickel, silver, stainless steel, and alloys thereof, said attachment device arranged to press said semiconductor between said spring element and said interconnect structure to provide an electrical connection between said plurality of conductors and said corresponding ones of said plurality of contacts, ~~said attachment device.~~

30. (Amended) The apparatus of claim 29, wherein said conductive member comprises a plurality of conductive particles adhesively applied to at least one surface of said first elastomeric material.

31. (Amended) The apparatus of claim 29, wherein said plurality of conductive particles are interspersed within said elastomeric member so as to define a layer of conductive material on at least one surface of said first elastomeric material.